

Chapter 5

Credits for Mitigation and Compensation Fees

Phosphorus reduction can also be achieved through mitigation measures that focus on eliminating or reducing phosphorus loads from existing sources.

The objective of this project planning process is to limit increases in phosphorus loading to the lake resulting from development. The methods discussed thus far have focused on limiting the scope of the development or reducing its phosphorus export by incorporating BMPs. Phosphorus load to the lake can also be limited by reducing export from long standing, existing sources of phosphorus, a trade off usually referred to as mitigation.

5.1 Types of Mitigation

Mitigation can take a number of forms. It can involve the elimination of an historical source or a reduction of the source, usually by treatment with BMPs.

Phosphorus loads can also be limited by reducing export from existing sources of phosphorus on a site, a trade off usually referred to as mitigation. Mitigation credits can be achieved through two means:

- (1) elimination of existing phosphorus sources (e.g., elimination of an old gravel road so it can revert back to a forested condition); or
- (2) reduction of existing phosphorus sources through treatment (e.g., diverting stormwater flows from an existing road to a treatment device for phosphorus removal).
- (3) to be considered an existing source, it must have been in existence prior to 1980.

Elimination

A wood lot being developed as a subdivision can provide a good example of elimination. An old, gravel road passes through the wood lot. It will not, however, be used by the developer, who plans to eliminate the old road and construct a new road in a different location to access the new house lots. The old road has been exporting phosphorus to the lake for the last 50 years. Elimination of the road and

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return to a forested condition will result in a reduction of phosphorus loading to the lake. This reduction in historical phosphorus export can be used to balance, or mitigate, some of the project's new phosphorus export. In this chapter we will discuss various ways of mitigating new phosphorus export by reducing or eliminating historical phosphorus sources, and how credit for this mitigation can be applied to a project's phosphorus budget.

Reduction by Treatment

Suppose the developer actually wants to use the old road in his subdivision scheme. In order to reduce phosphorus export from other parts of his development he is constructing a wet pond BMP down gradient of the development. The old road, which formerly drained directly to the lake, now drains first to the wet pond, which has a treatment factor of 0.40. This means that only 40% of the old road's phosphorus export is now reaching the lake, with the remainder retained in the wet pond. Phosphorus export from the road has now been reduced by 60%. This reduction in phosphorus, called a credit, can now be subtracted from the phosphorus export associated with newly developed portions of the project.

Another variation on this example illustrates an even more common situation. Suppose the old gravel road is not wide enough to meet current town standards for subdivision roads and it must be widened from 12 feet to 24 feet. This expansion of road width means that half of the 24 foot road must be considered new in terms of phosphorus export. Its export, as modified by the wet pond's treatment factor, would be included in the list of phosphorus exports in Worksheet 2. Stormwater from the half of the road which can be considered old, however, is now being treated and the resulting reduction in phosphorus export is a credit that can be subtracted from the project's total phosphorus export.

Problems with Estimating Credit for Mitigation

But how does one estimate the amount of phosphorus export that is being reduced or eliminated? Phosphorus export from old, pre-existing sources can be estimated in the same way as new sources, using the export factors in Table 3.1. However, in doing so two important issues must be considered.

1) Comparability of existing and proposed phosphorus export sources:

Let's return to the road example. Suppose the old gravel road has seen only very light use as a woods road over the last 50 years. It has started to revert with vegetation encroaching on the sides and in the middle between the tire tracks. It is unlikely that it currently exports nearly as much phosphorus per square foot as will the new subdivision road, which will receive comparably heavy use. So treatment or elimination of this export will not provide equivalent mitigation for the new road which replaces it. To avoid this problem, this evaluation process automatically cuts the estimated phosphorus export from pre-existing sources in half unless it is clearly demonstrated that the old source is equivalent in both structure and use to the new sources being mitigated. A multiplier of 0.5 is included in Worksheet 3 for this purpose.

2) Historic drainage patterns of the phosphorus export:

If the runoff from the historic road immediately drained into a road ditch and continued, untreated, to the lake there is no problem with taking credit for elimination or treatment of the old road. But often the runoff from old roads sheets into the woods or fields adjacent to the road where much of its phosphorus export is retained in a natural buffer, and never reaches the lake. In this case credit should not be taken for treatment of the road's stormwater runoff because it was already receiving treatment, unless the new BMP has a much better treatment factor than the

historic BMP. In that case, credit may be taken for treatment, but only for the difference between the old and new phosphorus export. If the road is being

eliminated, credit should only be taken for an amount of export which has been reduced by the treatment factor of the historic buffer.

5.2 Estimating Credits for Mitigation

Worksheet 3 may be used to calculate mitigation credits. The upper portion of the worksheet is used to calculate credit when a pre-existing source is being eliminated. The lower portion of Worksheet 3 is used when a pre-existing, historically untreated source is being treated by new BMPs. Credits are determined as follows:

1. List the size of the source area (in acres and to the second decimal place) and phosphorus export factor from Table 3.1 for each pre-existing mitigation source in the appropriate spaces on Worksheet 3.
2. If the source is being eliminated, enter the estimated treatment factor for any natural buffers or other BMPs that historically provided treatment of the source in Worksheet 3 or enter 1.0 if the source drains directly to the lake. If the source is being treated, enter the treatment factor for the new BMP which will be treating each mitigation source in the worksheet. Also enter the estimated treatment factor for any natural buffers or other BMPs that historically provided treatment of the source in Worksheet 3 or enter 1.0 if the source drained directly to the lake.
3. For source elimination and treatment multiply the source area by the phosphorus export factor and by 0.5 (unless it has been clearly demonstrated that the old source is equivalent in both structure and use to the new sources being mitigated) to calculate the creditable pre-treatment phosphorus export from each source area. Then multiply the pre-treatment phosphorus export (from Step 3) by any treatment factors for historical BMPs to obtain the historical phosphorus export.
4. For each source that is being eliminated, the mitigation credit value is equivalent to the historical phosphorus export value (from Step 3). For sources being treated by new BMP(s), subtract the new BMP treatment factor from 1.0 and multiply this times the source's historical phosphorus export (from Step 3) to get the mitigation credit value for each source.
5. Sum the phosphorus export credit values for all mitigation sources to obtain the total credit value in Worksheet 3.

5.3 On-site vs. Off-site Mitigation

Another important mitigation consideration is whether the mitigation source and, in the case of treatment, the BMP, are located on the parcel (on-site) or elsewhere in the lake's watershed (off-site). If the treatment source and the treatment BMP are located on-site, the developer can insure through property owner agreements, deed covenants and restrictions, conservation easements, endowments and/or long term

agreements with maintenance contractors that eliminated sources will be allowed to revert and remain in a forested condition and that BMPs will be properly maintained. Essentially these mitigation measures are treated no differently than the buffers and other BMPs incorporated in the project to address new sources of phosphorus export.

If the mitigation measures are being implemented elsewhere in the watershed, it is a much greater challenge, for both the developer and any regulating body which is requiring the mitigation, to insure that the measures are maintained over the long term. In the case of elimination of off-site mitigation sources, these areas can be reasonably protected by deed restrictions and conservation easements. However, insuring long term maintenance of off-site BMPs is much more problematic. Because of these difficulties, *it is recommended that*

treatment of mitigation sources with off site BMPs not be allowed unless (a) the property on which the off-site mitigation is taking place and the project parcel are in common ownership, and that owner is a permanent entity, such as a town or a school district, that is not likely to transfer ownership of either parcel or (b) a local regulatory or management agency (i.e. municipality, watershed district) has adopted a program for long term tracking and monitoring of mitigation measures in the watershed.

Mitigation Dos and Don'ts	
Don't take credit for mitigation of relatively recent phosphorus sources. Credit should not be allowed on sources, which were not in existence prior to 1980.	Do halve the phosphorus export from mitigation sources unless it is clearly demonstrated that the old source is equivalent in both structure and use to the new sources being mitigated.
Don't take credit for treatment of mitigation sources, which have been historically treated by adjacent buffers or treatment ponds.	Do adjust the credit for any source elimination to reflect historical treatment by buffers or ponds.
	Do insure, through property owner agreements, deed covenants and restrictions, conservation easements, endowments and/or long term agreements with maintenance contractors, that eliminated sources will be allowed to revert and remain in a forested condition and that BMPs will be properly maintained.

5.4 Compensation Fees

The Maine Stormwater Management Law (38 MRSA § 420-D) and its accompanying regulations (DEP Chapter 500) address some of the problems associated with off-site mitigation discussed above by allowing an alternative known as the Compensation Fee Program. The law recognizes the difficulties a state agency would have in tracking and insuring the maintenance of off-site BMPs used for mitigation on a project. The regulations therefore allow only the elimination or reduction (by land use change) of off-site sources of phosphorus, called off-sets. The regulations do not allow treatment of off-site sources as a form of mitigation.

As an alternative to project based off-site treatment mitigation, the Law sets up the Compensation Fee Program. This program allows the department to let the developer offset a portion of the phosphorus reduction required for the project to meet its phosphorus budget by paying a compensation fee to the Department. The Department, or an authorized local entity, accumulates compensation fee funds in accounts for each individual lake watershed, and uses these funds to provide long term solutions to priority chronic phosphorus sources within the watershed. The department is not required to allow use of this program in all cases, and there are a number of lake watersheds where it is not appropriate. These include small, relatively

undeveloped lake watersheds that happen to be in a region of high growth. In these cases there are few if any opportunities to address existing problems in the watershed. It may also include watersheds where a large amount of restoration work has already been performed and any problems remaining to be addressed are more expensive than the compensation rate can cover. Lastly, it includes areas where there are no local watershed management agencies (i.e. soil and water conservation districts, watershed districts, etc.) interested in developing and implementing mitigation projects. Developers should not assume that the compensation fee is an option until they have checked to be sure it is available in the lake watershed in which the proposed development is located. Appendix F is a list of lake watersheds that the Department is confident eligible mitigation projects can be found and implemented. The compensation fee option is available for all lakes on the Appendix F list, which will be updated on a regular basis. If the proposed development is in a lake watershed that is not on this list, the developer may check with the DEP Division of Watershed Management staff to see if the lake in question might be added to the list.

The current compensation rate (November 2007) is \$10,000 per pound of algal available phosphorus. This means that if a project's phosphorus budget was 0.5 lb P/yr and, after application of reasonable BMPs, the project

export could only be reduced to 1.0 lb P/yr, the remaining 0.5 lb reduction required to meet the project's budget could be offset by a compensation fee payment of \$5,000 (0.5 lb x \$10,000 /lb). In the near future, the compensation rate may be adjusted upwards to reflect the rising cost of appropriate BMPs, perhaps to \$25,000 per pound.

For most projects, the Department requires a 60% reduction in phosphorus export before a compensation fee can be applied. To express this in terms of the worksheets used to calculate project phosphorus export, the sum of post-treatment export expressed on Worksheet 2 must be less than or equal to 0.4 times the sum of pre-treatment export expressed on Worksheet 2 in order for a project to offset any additional phosphorus reductions through payment of a compensation fee.

Projects in lake watersheds regulated by the state under the Stormwater Management Law may have the opportunity to use compensation fees to help meet their project's phosphorus budget as required by that law. These projects may, however, also come under local regulation, which may or may not recognize compensation fee payment as an alternative to on-site reduction of phosphorus export.